



AGILENT TECHNOLOGIES, INC.  
Legal Department, DL429  
Intellectual Property Administration  
P.O. Box 7599  
Loveland, Colorado 80537-0599

PATENT APPLICATION  
Attorney Docket No. 11047.03

DAC / IFW  
+

IN THE  
UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Joseph J. KIRKLAND, et al.

Confirmation No.: 5101

Application No.: 10/694,918

Examiner: C.P. Cooke

Filing Date: October 28, 2003

Group Art Unit: 1754

Title: POROUS SILICA MICROSPHERE SCAVENGERS

Mail Stop Petition  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

RENEWED PETITION FOR REVIVAL OF AN APPLICATION FOR PATENT ABANDONED  
UNINTENTIONALLY UNDER 37 CFR 1.137(b)

Sir:

This renewed petition to revive the above-identified application is in response to the Decision on Petition dated **September 23, 2005**. Applicant corrects the only deficiency noted in the Decision by having the undersigned, one of three original attorneys of record, sign all documents. Please consider this renewed petition as follows:

1. This application became abandoned on **November 18, 2004**.
2. This application became abandoned because of an unintentional delay causing a failure to prosecute. The entire delay in filing the required reply from the due date for the required reply until the filing of a grantable petition under 37 CFR 1.137(b) was unintentional.
3. Response or action required: A response under 37 CFR 1.111 is enclosed herewith.
4. Terminal disclaimer 37 CFR 1.137(c): Since this utility application was filed on or after June 8, 1995, no terminal disclaimer is required, pursuant to 37 CFR 1.137(d).

A petition fee in the amount of **\$1,500.00** was already paid and submitted along with the initial petition under 37 CFR 1.137(b) filed on January 27, 2005. In addition, a Terminal Disclaimer in the amount of **\$130.00** was also paid along with the January 27, 2005 petition. Accordingly, in view of these facts it is believed that no additional fees are due for this petition. However, should the Commissioner believe that additional fees are due, please charge any fees required or credit any over payment to Deposit Account 50-1078 pursuant to 37 CFR 1.25. A duplicate copy of this sheet is enclosed.

In closing, please find enclosed a **Supplemental Application Data Sheet** as well as a **Change of Address in a Pending Application** to update correspondent address information for this application.

Respectfully submitted,

Frank R. Perillo  
Attorney/Agent for Applicant(s)  
Reg. No. 27,586

Date: 11/9/05

Telephone No.: (978) 681-2407



ATTORNEY DOCKET NO.: 11047.03

PATENT APPLICATION

IN THE  
UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Joseph J. KIRKLAND, et al.

Confirmation No.: 5101

Application No.: 10/694,918

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Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**CHANGE OF CORRESPONDENCE ADDRESS IN PENDING**

**APPLICATION UNDER 37 C.F.R. § 1.33(d)**

Sir:

Please change the Correspondence Address for the above-identified patent application to:

**AGILENT TECHNOLOGIES, INC.**  
Legal Department, DL429  
Intellectual Property Administration  
P.O. Box 7599  
Loveland, Colorado 80537-0599  
(650) 485-2386 (telephone)  
(650) 485-5487 (facsimile)  
**USPTO Customer Number 022878**

The undersigned requests this change of Correspondence Address as an Attorney or Agent of record in the above-identified patent application.

Respectfully submitted,

**Frank R. Perillo**  
Attorney/Agent for Applicant(s)  
Reg. No. 27,586

Date: 11/9/05

Telephone No.: (978) 681-2407



**SUPPLEMENTAL APPLICATION DATA SHEET**

**Inventor Information**

Inventor One Given Name ::  
Family Name ::  
Name Suffix ::  
Postal Address Line One ::  
Postal Address Line Two ::  
City ::  
State or Province ::  
Country ::  
Postal or Zip Code ::  
City of Residence ::  
State or Prov. of Residence ::  
Country of Residence ::  
Citizenship Country ::

Inventor Two Given Name ::  
Family Name ::  
Name Suffix ::  
Postal Address Line One ::  
Postal Address Line Two ::  
City ::  
State or Province ::  
Country ::  
Postal or Zip Code ::  
City of Residence ::  
State or Prov. of Residence ::  
Country of Residence ::  
Citizenship Country ::

Inventor Three Given Name ::  
Family Name ::  
Name Suffix ::  
Postal Address Line One ::  
Postal Address Line Two ::  
City ::  
State or Province ::  
Country ::  
Postal or Zip Code ::  
City of Residence ::  
State or Prov. of Residence ::  
Country of Residence ::  
Citizenship Country ::

**Correspondence Information**

Name Line One ::	(MODIFIED)
Address Line One ::	Frank R. Perillo
Address Line Two ::	Legal Department, DL429
City ::	P.O. Box 7599
State or Province ::	Loveland
Postal or Zip Code ::	Colorado
Telephone ::	80537
Fax ::	(978) 681-2407
E-Mail ::	(650) 485-5487
	frank_perillo@agilent.com

### **Application Information**

Title Line One ::

Title Line Two ::

Total Drawing Sheets ::

Formal Drawings ::

Application Type ::

Docket Number :: (MODIFIED) 10981978-7

### **Representative Information**

Representative Customer Number :: (MODIFIED) 022878

### **Continuity Information**

This application is a ::

> Application One ::

Filing Date ::

which is a ::

>> Application Two ::

Filing Date ::

which is a ::

>> Application Two ::

Filing Date ::



**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Appl. No. : 10/694,918  
Applicant : Joseph J. KIRKLAND, et al.  
Filed : October 28, 2003  
Title : POROUS SILICA MICROSPHERE SCAVENGERS  
TC/A.U. : 1754  
Examiner : C.P. Cooke  
Docket No. : 11047.03  
Customer No. : 022878

**Mail Stop Amendment**  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

**RESPONSE AND AMENDMENT UNDER 37 C.F.R. 1.111**

Sir:

In response to the Office Action of May 17, 2004, please consider the following remarks for the above-identified application as follows:

**Listing of the Claims** are reflected in the listing of claims which begins on page 2 of this paper.

**Remarks/Arguments** begin on page 5 of this paper.

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claim 1 (original): Highly purified porous silica microspheres, having nominal diameters in the range of from about 10 microns to about 200 microns, and a porosity of at least about 50%, said microspheres are hydroxylated to create surface silanol groups and reacted with silane containing functional groups, said microspheres having a pH of about 6 to about 7, wherein said functional groups are capable of binding with an impurity in a reaction medium containing the impurity and a reaction product, and selectively remove the impurity.

Claim 2 (original): The silica microspheres of claim 1 which have a density of at least about 1.2 grams/cc.

Claim 3 (original): The silica microspheres of claim 1 which are prepared from a silica sol prepared by the controlled hydrolysis of an organic silicon compound.

Claim 4 (original): The silica microspheres of claim 1 which are prepared from fumed silica.

Claim 5 (original): The silica microspheres of claim 1 produced from an organic silicon compound that is tetraethyl-o-silicate.

Claim 6 (original): The silica microspheres of claim 1 which are sintered to provide mechanical strength.

Claim 7 (original): The silica microspheres of claim 1 wherein the functional groups are selected from monoamines, triamines, tertiary amines, sulfonic acid, sulfonyl chloride, isocyanates, epoxides, diamines, diphenylphosphines, diethylphosphine, mercaptans, alkylbromo, and sulfonyl hydrazine.

Claim 8 (original): The silica microspheres of claim 1 which have a purity of at least about 99.99%

Claim 9 (original): A packed bed containing the microspheres of claim 1.

Claim 10 (original): A filter containing the microspheres of claim 1.

Claim 11 (original): A reservoir containing the microspheres of claim 1.

Claim 12 (original): A cartridge containing the microspheres of claim 1.

Claim 13 (original): A method for removing impurities from a reaction medium containing a product and impurities comprising

contacting the reaction medium with the functionalized silica microspheres of claim 1 for a sufficient time to allow the microspheres to selectively bind to the impurities, and

separating the functionalized microspheres from the reaction medium leaving substantially all of the product in the reaction medium.

Claim 14 (original): The method of claim 13 wherein the silica microspheres have a density of at least about 1.2 grams/cc.

Claim 15 (original): The method of claim 13 wherein the silica microspheres are prepared by spray drying a silica sol prepared by the controlled hydrolysis of an organic silicon compound.

Claim 16 (original): The method of claim 13 wherein the silica microspheres are prepared by spray drying fumed silica.

Claim 17 (original): The method of claim 13 wherein the silica microspheres are sintered to provide mechanical strength.

Claim 18 (original): The method of claim 13 wherein the silica microspheres contain functional groups selected from monoamines, triamines, tertiary amines, sulfonic acid, sulfonyl chloride, isocyanates, epoxides, diamines, diphenylphosphines, diethylphosphine, mercaptans, alkylbromo, and sulfonyl hydrazine.

Claim 19 (original): The method of claim 13 wherein the silica microspheres have a purity of at least about 99.99%.

Claim 20 (original): The method of claim 13 which further comprises passing the reaction medium through a device selected from the group consisting of a packed bed, a filter, a reservoir and a cartridge.

Claim 21 (original): A method of removing impurities from a reaction mixture containing a product and impurities comprising:

contacting said reaction mixture with porous silica microspheres, said microspheres having a nominal diameter range of from about 10 microns to about 200 microns, a porosity of at least about 50%, said microspheres having a pH of about 6 to about 7, wherein said microspheres are hydroxylated to create surface silanol groups and reacted with silane containing functional groups, wherein said functional groups are capable of binding with said impurities, thereby selectively removing said impurities from said reaction mixture.

Claim 22 (original): The method of claim 21 further comprising separating said porous silica microspheres from said reaction mixture, thereby affording a substantially purified product.

Claim 23 (original): The method of claim 21 wherein said reaction mixture is contained in a reaction vessel selected from the group consisting of a packed bed, a filter, a reservoir and a cartridge.

Claim 24 (original): The method of claim 21 wherein said porous silica microspheres are separated from said reaction mixture by simple filtration or centrifugation.

Claim 25 (original): Highly purified, porous silica microspheres, having nominal diameters in the range of from about 10 microns to about 200 microns, and a porosity of at least about 50%, said microspheres containing functional groups which are capable of binding with an impurity in a reaction medium containing the impurity and a reaction product, and selectively removing the impurity.



**REMARKS/ARGUMENTS**

Claims 1-25 are pending. No new matter is introduced. Reconsideration and issuance of a Notice of Allowance is respectfully requested.

On page 2 the Office Action rejects claims 1-25 under the judicially created doctrine of obviousness type double patenting over U.S. Patent 6,482,324.

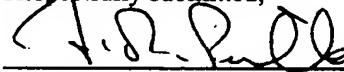
Filed herewith is a Terminal Disclaimer in accordance with 37 C.F.R. §1.321 disclaiming any term extending beyond that of the '324 patent. Withdrawal of the rejection of claims 1-25 based on the judicially created doctrine of double patenting is respectfully requested.

**CONCLUSION**

In view of the above remarks, Applicant respectfully submits that the application is in condition for allowance. Prompt examination and allowance are respectfully requested.

Should the Examiner believe that anything further is desired in order to place the application in even better condition for allowance, the Examiner is invited to contact Applicant's undersigned representative at the telephone number listed below.

Respectfully submitted,



**Frank R. Perillo**

Attorney/Agent for Applicant(s)

Reg. No. 27,586

Date: 11/9/05

Telephone No.: (978) 681-2407

Attachment: Terminal Disclaimer

AGILENT TECHNOLOGIES, INC.  
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ATTORNEY DOCKET NO. 11047.03



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Serial No.: 10/694,918

Examiner: C.P. Cooke

Filing Date: October 28, 2003

Group Art Unit: 1754

Title: POROUS SILICA MICROSPHERE SCAVENGERS

COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria VA 22313-1450

**TERMINAL DISCLAIMER**  
**RESPONSIVE TO A DOUBLE PATENTING REJECTION**

Sir:

Petitioner, Agilent Technologies Inc., is the owner of 100 percent interest in the instant application. Petitioner hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application, which would extend beyond the expiration date of the full statutory term defined in 35 U.S.C. 154 to 156 and 173 as shortened by any terminal disclaimer of prior Patent No. 6,482,324 to Agilent Technologies Inc., which issued on November 19, 2002 and is commonly owned by Applicant. Petitioner hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and the prior patent are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, petitioner does not disclaim the terminal part of any patent granted on the instant application that would extend to the expiration date of the full statutory term as defined in 35 U.S.C. 154 to 156 and 173 of the prior patent as shortened by any terminal disclaimer filed prior to the patent grant, in the event that any such granted patent: expires for failure to pay a maintenance fee, is held unenforceable, is found invalid by a court of competent jurisdiction, is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321, has all claims canceled by a reexamination certificate, is reissued, or is in any manner terminated prior to the expiration of its full statutory term as shortened by any terminal disclaimer filed prior to its grant.

For submissions on behalf of an organization (e.g., corporation), the undersigned is empowered to act on behalf of the organization.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

**TERMINAL DISCLAIMER – DOUBLE PATENTING**  
(continued)

**ATTORNEY DOCKET NO. 11047.03**

Please charge the required fee set forth in 37 CFR 1.29(d) of \$0.00 to Deposit Account 50-1078. At any time during the pendency of this application, please charge any fees required or credit any overpayment to Deposit Account 50-1078 pursuant to 37 CFR 1.25.

Respectfully submitted,

Joseph J. KIRKLAND, et al.

By

  
Frank R. Perillo  
Attorney/Agent for Applicant(s)

☐ I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria VA 22313-1450.

Date of Deposit:

OR

☐ I hereby certify that this paper is being facsimile transmitted to the Commissioner for Patents on the date shown below.

Date of Facsimile:

Typed Name:

Signature: \_\_\_\_\_

Reg. No. 27,586

Date: 11/9/05

Telephone No. (978) 681-2407